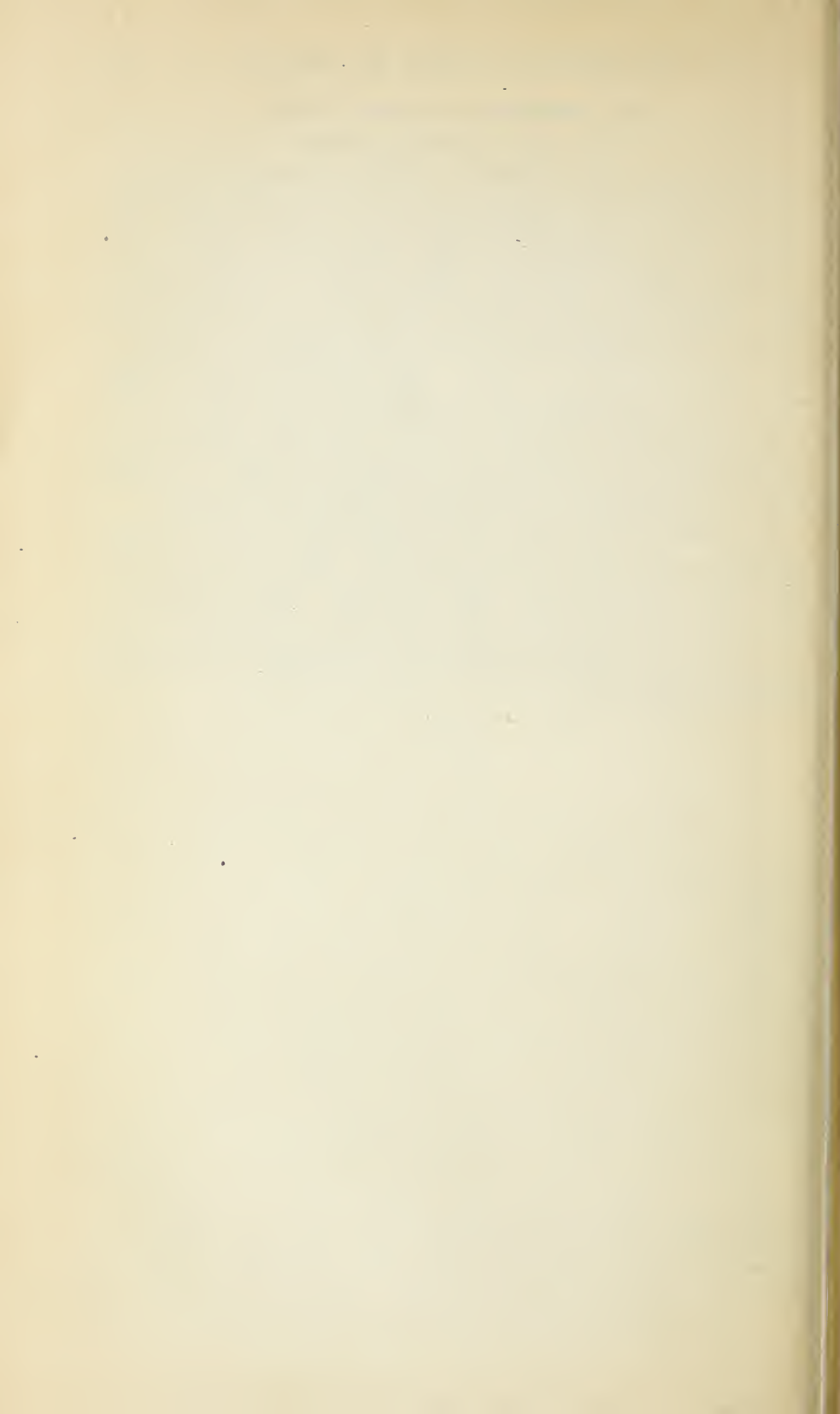


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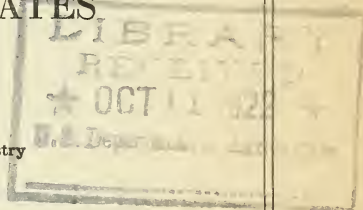
UNITED STATES DEPARTMENT of AGRICULTURE

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FOOD ANIMALS *and* MEAT CONSUMPTION IN THE UNITED STATES

JOHN ROBERTS

Editorial Office, Bureau of Animal Industry



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THE HISTORY OF THE
CITY OF BOSTON

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FOOD ANIMALS AND MEAT CONSUMPTION IN THE UNITED STATES.

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TREND OF POPULATION AND LIVE STOCK, 1850-1922.

An accurate knowledge of the numbers of the different classes of domestic animals in the country is at all times a matter of interest and value to the farming and other industries concerned with live-stock, as well as to many individuals. Hence it has been one of the important functions of our decennial census to supply this knowledge. The live-stock population, however, from various economic causes is subject to more or less abrupt changes from year to year, and therefore it is recognized that a count once in 10 years only is quite inadequate. Thus it happens that this important omission is filled by the United States Department of Agriculture, through its crop-reporting system, which annually estimates the numbers of live stock on the farms of the country. These estimates are made for January 1; they are given out in February, and also appear each year in the Yearbook.

It may be noted that the figures in Table 1 vary somewhat from the totals of the department. They are, in fact, not strictly comparable, as the department figures are for animals on farms only, whereas those in the table include the considerable fraction (as ascertained by the census) which is not on farms. Again, the department classifies cattle into "Milk cows," that is, cows old enough to give milk, and "All other," while in the table the cattle are subdivided into "Beef" and "Dairy," the latter of course including the young animals and the bulls of that type. The census figures, too, have been taken at different periods of the year and with more or less important changes in the classification of the animals. Therefore, adjustments have been made with a view to rectifying these differences and to bringing all totals to a January 1 basis.

The estimates in the table are by Sewall Wright, of the Animal Husbandry Division, Bureau of Animal Industry, who has made a close study of the census and department figures. In submitting his estimates Doctor Wright states:

They are made by adjustment of the census figures to a January 1 basis and to include all ages and all animals in towns, villages, and ranges as well as on farms. The estimates of the Bureau of Crop Estimates have been used to obtain the fluctuations between census years. A method is used by means of which the ratio of the estimates in successive years for 10 years after each census is multiplied by a constant factor so as to make the tenth year agree with the next census. The estimates for dairy cattle have been obtained from those for milk cows by multiplying by 1.572—the ratio of total dairy cattle to milk cows 2 years old and over in the census of 1920—this being the first census in which dairy cattle of all ages were separated from beef cattle. The estimates for beef cattle are simply the differences between the estimates for total cattle and dairy cattle. The term dairy cattle, resting as it does on the old census term "Milch cows" from 1850 to 1890, probably does not mean quite the same thing throughout. There has probably been a much greater increase in the amount of strictly dairy blood than indicated.

TABLE 1.—*Estimated total numbers of cattle, sheep, and swine (on farms and otherwise) in United States, 1850–1922.*

[Census and department figures adjusted to January 1 of each year.]

January 1—	Cattle.			Sheep.	Swine.
	Dairy.	Beef.	Total.		
1850.....	10,100,000	14,400,000	24,500,000	29,100,000	31,200,000
1860.....	13,500,000	18,900,000	32,400,000	27,600,000	34,500,000
1867.....	12,000,000	12,600,000	24,600,000	38,100,000	28,200,000
1868.....	12,400,000	13,600,000	26,000,000	37,600,000	28,300,000
1869.....	13,000,000	14,800,000	27,800,000	36,200,000	27,600,000
1870.....	14,000,000	20,000,000	34,000,000	39,000,000	32,300,000
1871.....	14,100,000	21,000,000	35,100,000	38,900,000	36,400,000
1872.....	14,700,000	21,100,000	35,800,000	38,600,000	40,100,000
1873.....	15,400,000	20,900,000	36,300,000	40,100,000	42,100,000
1874.....	15,800,000	20,500,000	36,300,000	41,100,000	40,700,000
1875.....	16,300,000	20,400,000	36,700,000	40,800,000	37,800,000
1876.....	16,900,000	20,800,000	37,700,000	43,300,000	35,500,000
1877.....	17,400,000	22,200,000	39,600,000	43,000,000	39,500,000
1878.....	17,700,000	23,800,000	41,500,000	42,800,000	46,500,000
1879.....	18,900,000	26,400,000	45,300,000	45,500,000	51,200,000
1880.....	19,500,000	25,900,000	45,400,000	48,500,000	51,200,000
1881.....	20,100,000	24,900,000	45,000,000	51,200,000	53,100,000
1882.....	20,500,000	27,600,000	48,100,000	52,300,000	62,900,000
1883.....	21,300,000	33,400,000	54,700,000	56,600,000	60,000,000
1884.....	21,900,000	34,100,000	56,000,000	57,500,000	59,600,000
1885.....	22,600,000	34,400,000	57,000,000	56,500,000	59,300,000
1886.....	23,100,000	35,700,000	58,800,000	53,600,000	58,900,000
1887.....	23,600,000	37,900,000	61,500,000	49,100,000	55,500,000
1888.....	24,100,000	38,300,000	62,400,000	47,200,000	53,600,000
1889.....	24,900,000	38,300,000	63,200,000	45,700,000	59,200,000
1890.....	25,900,000	39,800,000	65,700,000	47,000,000	59,100,000
1891.....	26,100,000	40,900,000	67,000,000	46,400,000	59,400,000
1892.....	26,900,000	42,000,000	68,900,000	48,400,000	62,900,000
1893.....	27,000,000	40,500,000	67,500,000	51,300,000	56,700,000
1894.....	27,100,000	43,700,000	70,800,000	49,300,000	57,000,000
1895.....	27,300,000	41,700,000	69,000,000	46,700,000	57,000,000
1896.....	26,800,000	39,700,000	66,500,000	42,600,000	56,600,000
1897.....	26,500,000	38,700,000	65,200,000	41,300,000	55,000,000
1898.....	26,400,000	38,000,000	64,400,000	42,600,000	55,100,000
1899.....	26,800,000	37,100,000	63,900,000	44,600,000	54,900,000
1900.....	27,400,000	37,500,000	64,900,000	48,100,000	53,900,000

TABLE 1.—*Estimated total numbers of cattle, sheep, and swine (on farms and otherwise) in United States, 1850-1922—Continued.*

January 1—	Cattle.			Sheep.	Swine.
	Dairy.	Beef.	Total.		
1901.....	26,800,000	37,700,000	64,500,000	50,400,000	55,700,000
1902.....	26,100,000	36,400,000	62,500,000	51,900,000	48,700,000
1903.....	26,300,000	35,600,000	61,900,000	53,000,000	48,000,000
1904.....	26,400,000	33,800,000	60,200,000	42,500,000	49,200,000
1905.....	26,200,000	33,300,000	59,500,000	36,800,000	50,600,000
1906.....	29,100,000	34,800,000	63,900,000	41,000,000	57,000,000
1907.....	30,300,000	37,900,000	68,200,000	42,700,000	61,300,000
1908.....	30,100,000	35,900,000	66,000,000	43,500,000	64,200,000
1909.....	30,400,000	34,400,000	64,800,000	44,300,000	63,400,000
1910.....	30,000,000	32,000,000	62,000,000	44,800,000	57,200,000
1911.....	30,200,000	30,500,000	60,700,000	45,200,000	63,700,000
1912.....	29,900,000	28,300,000	58,200,000	43,600,000	62,700,000
1913.....	29,400,000	27,400,000	56,800,000	42,300,000	57,900,000
1914.....	29,600,000	27,200,000	56,800,000	40,400,000	55,000,000
1915.....	30,300,000	28,300,000	58,600,000	40,000,000	59,600,000
1916.....	31,300,000	30,900,000	62,200,000	38,500,000	61,700,000
1917.....	32,300,000	32,600,000	64,900,000	37,200,000	60,700,000
1918.....	32,700,000	35,100,000	67,800,000	37,500,000	63,000,000
1919.....	32,800,000	36,200,000	69,000,000	37,200,000	65,300,000
1920.....	32,900,000	35,900,000	68,800,000	35,400,000	62,000,000
1921.....	32,700,000	34,500,000	67,200,000	34,000,000	57,600,000
1922.....	33,300,000	33,700,000	67,000,000	32,700,000	58,500,000

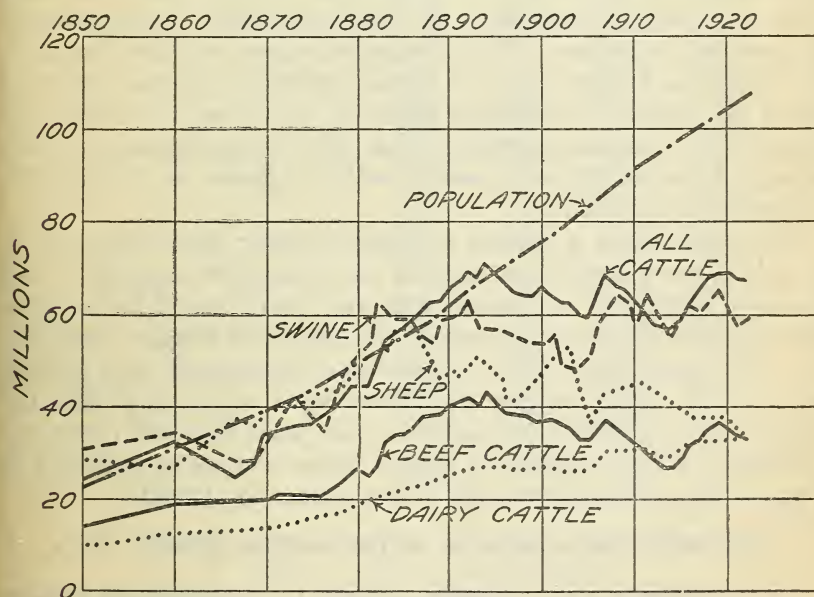


FIG. 1.—Trend of human and live-stock population, 1850-1922.

A study of the table and the corresponding chart, Figure 1, shows a rather remarkable unanimity in all the curves, including that of the population, until 1885, excepting the drop in cattle and swine at 1867, due to the Civil War. After 1885 the three live-stock curves are characterized by considerable irregularity. The line of population definitely parted company with that of sheep in 1885; that of swine

clung on, rather weakly, until 1892, while that of cattle continued its supremacy until 1895.

As previously explained, an attempt has been made to subdivide the cattle into the beef and dairy types, and it will be noted that the curve of dairy cattle is far more regular than any other, except the population. It is interesting to note, also, that dairy cattle exceeded the beef type in number from 1913 to 1917.

The relative positions of the curves in 1922 indicate more and more difficulty in supplying our ever-increasing population with a sufficiency of meat and dairy products and at the same time maintain a surplus for the export trade.

The conditions at present (April, 1922) surrounding the live-stock industry indicate a return to normalcy and better compensation for stock raisers. The farmer on his part should endeavor to improve his breeding and feeding methods so as to increase the average quality and meatiness of his animals, and thereby also his profits. But stability and continued prosperity in the industry depend largely upon the attitude of the general public as consumers. The business of marketing the products of food animals is highly specialized, and there are many complications in the intermediate stages between producer and consumer. There seems to be good evidence, however, that there has been too great a spread between wholesale and retail prices of meats. The retailer might be more apt to curtail this margin if the consumer contributed his share by purchasing a greater variety of cuts as well as a greater variety of meats, as, for example, a larger use of mutton.

The consumption of mutton and lamb is shown later (Table 10) to be only about 6 pounds per head of the population annually. This quantity might well be doubled, and even then it would be less than half the consumption of this class of meat in Great Britain (see Table 11). Of course, any decided increase would necessarily be a gradual process. The sheep rancher and farmer must cooperate so that the supply will be sufficient to insure a retail price that will tempt the consumer. Lamb chops at 50 cents a pound can not be expected to compete with porterhouse steak of like quality at 40 cents.

PUREBRED FOOD ANIMALS IN THE UNITED STATES, 1920.

A very interesting and valuable addition to our knowledge of farm live stock was ascertained for the first time at the last agricultural census for 1920, namely, the numbers of the registered purebred animals on each farm. An arrangement of the census figures is given in Table 2, showing the number of registered purebreds reported for each State in order of priority from the standpoint of total purebreds in the State. Table 3 gives the totals for each breed in order of

precedence for each class of stock. The map (Fig. 2) shows the geographical location of the animals by the distribution in each State.

TABLE 2.—Number of registered purebred cattle, sheep, and swine on farms and per cent of total purebreds in each State, January 1, 1920.

State.	Number of registered purebred—			Total registered purebreds.	
	Cattle.	Sheep.	Swine.	Number.	Per cent.
United States.....	1,981,514	463,504	2,049,900	4,494,918	100.0
Iowa.....	171,645	19,522	289,042	480,209	10.7
Illinois.....	109,996	13,300	215,965	339,261	7.5
Missouri.....	102,939	15,383	148,811	267,133	5.9
Ohio.....	96,384	39,444	96,908	232,736	5.2
Indiana.....	50,624	9,282	159,696	219,602	4.9
Texas.....	113,107	17,119	70,853	201,079	4.5
Wisconsin.....	137,527	10,600	52,237	200,424	4.5
Nebraska.....	82,047	3,448	112,502	197,997	4.4
Minnesota.....	88,696	8,729	99,443	196,868	4.4
New York.....	155,185	18,338	19,230	192,753	4.3
Kansas.....	97,723	4,565	65,870	168,158	3.7
South Dakota.....	62,348	6,487	91,853	160,688	3.6
Pennsylvania.....	81,290	15,781	34,775	131,846	2.9
Michigan.....	62,800	21,342	33,527	117,669	2.6
Oklahoma.....	48,252	2,942	53,888	105,082	2.3
California.....	32,388	28,831	35,741	96,960	2.2
Oregon.....	24,712	38,738	11,617	75,067	1.7
Tennessee.....	24,666	2,084	47,571	74,321	1.7
Idaho.....	19,376	47,107	7,299	73,782	1.6
North Dakota.....	33,821	4,989	22,076	60,886	1.4
Georgia.....	13,124	420	46,760	60,304	1.3
Arkansas.....	13,486	799	46,006	60,291	1.3
Colorado.....	33,610	7,982	17,951	59,543	1.3
Mississippi.....	16,001	481	42,923	59,405	1.3
Kentucky.....	19,693	5,549	33,619	58,861	1.3
Montana.....	22,994	24,208	5,351	52,553	1.2
Utah.....	13,856	30,013	2,492	46,361	1.0
Alabama.....	10,633	323	32,397	43,353	1.0
Virginia.....	17,777	3,785	20,867	42,429	1.0
North Carolina.....	10,782	1,207	27,374	39,363	.9
Washington.....	18,560	8,950	10,006	37,516	.8
Vermont.....	29,758	3,035	2,111	34,904	.8
Wyoming.....	17,530	15,612	1,498	34,640	.8
New Mexico.....	18,727	10,478	3,245	32,450	.7
South Carolina.....	6,864	192	21,282	28,338	.6
Massachusetts.....	19,993	1,245	6,533	27,771	.6
West Virginia.....	12,485	5,424	7,820	25,729	.6
Maine.....	18,202	2,361	2,913	23,476	.5
Florida.....	4,338	99	18,638	23,075	.5
Louisiana.....	6,498	194	11,675	18,367	.4
New Jersey.....	11,631	1,122	4,622	17,375	.4
Maryland.....	9,588	1,092	5,860	16,540	.4
New Hampshire.....	12,656	739	2,099	15,494	.3
Connecticut.....	10,961	841	3,366	15,168	.3
Arizona.....	8,455	2,205	1,914	12,574	.3
Nevada.....	4,174	6,342	449	10,965	.2
Delaware.....	1,707	12	653	2,372	.1
Rhode Island.....	1,719	93	513	2,325	.1
District of Columbia.....	186	.....	59	245	.....

TABLE 3.—Number of registered purebred food animals on farms in United States January 1, 1920, by breeds and classes.

CATTLE.

Beef:		Dairy:	
Shorthorn.....	416,995	Holstein-Friesian.....	523,621
Hereford.....	405,582	Jersey.....	231,834
Aberdeen Angus.....	108,524	Guernsey.....	79,446
Polled Durham (Shorthorn).....	61,764	Ayrshire.....	30,509
Galloway.....	7,225	Brown Swiss.....	8,233
Devon.....	1,413	Not specified.....	37,909
Not specified.....	63,409		
Total.....	1,064,912	Total.....	916,602

TABLE 3.—*Number of registered purebred food animals on farms in United States January 1, 1920, by breeds and class—Continued.*

SHEEP.			
Shropshire.....	124,454	Southdown.....	8,451
Rambouillet.....	106,849	Cheviot.....	3,000
Merino.....	59,920	Suffolk.....	805
Hampshire Down.....	51,813	Leicester.....	767
Oxford.....	16,601	Not specified.....	68,483
Lincoln.....	13,903	Total.....	463,504
Dorset Horn.....	8,458		
SWINE.			
Duroc-Jersey.....	819,117	Yorkshire.....	6,353
Poland China.....	726,504	Tamworth.....	5,639
Chester White.....	191,207	Essex.....	3,575
Hampshire.....	106,978	Not specified.....	56,148
Berkshire.....	86,676	Total.....	2,049,900
Spotted Poland China.....	47,703		

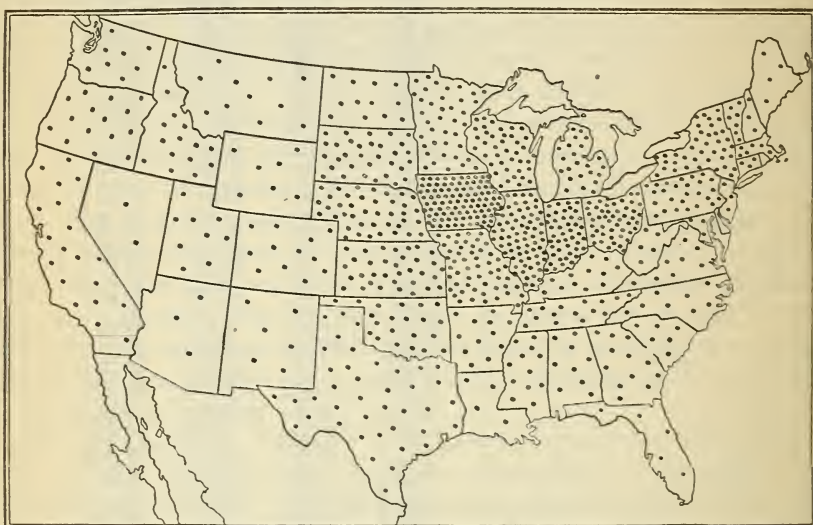


FIG. 2.—Distribution of registered purebred cattle, sheep, and swine, 1920. 1 dot=5,000 purebreds.

Iowa holds first place in numbers of purebreds, as it does in total animals including all grades. More than 10 per cent of all the registered cattle, sheep, and swine in the country are in that State. It is easily first in cattle and swine, but the great sheep States are farther west, and Idaho has the largest number of purebred sheep. Ohio is second in purebred sheep and in this respect is far in the lead of all States east of the Mississippi. In total purebreds Illinois comes second to Iowa, and Missouri third, these three States having close to one-fourth of the country's total.

In considering the purebred animals of the country as a whole, it should be remembered there are large numbers of purebreds that are not registered. Many breeders and feeders use purebred animals for strictly utility purposes and thus save the registration fees. Unregistered purebred swine are especially numerous. Inquiries by the Bureau of Animal Industry among swine owners and breed

associations indicate that about 80 per cent of purebred swine are not registered.

MONTHLY RATIOS OF BIRTHS AND SLAUGHTER OF FOOD ANIMALS.

Table 4 and Figures 3 and 4 show the seasonal relation between births and slaughter of food animals in the United States. The birth ratios were ascertained in an investigation conducted by the Bureau of Crop Estimates; so also was the farm slaughter of swine, which is the only class of farm slaughter available by months. Federally inspected slaughter is reported monthly for all classes of animals by the Bureau of Animal Industry, and the ratios have been computed from the monthly averages for the last 10 years. The figures in the tables show just how the accessions and depletions in each class of stock compare with each other at the end of each month in a normal year.

TABLE 4.—*Monthly ratios of births and slaughter of cattle, sheep, and swine in United States.*

Month.	Cattle.						Sheep.			
	Births.		Slaughter (U. S. inspected).				Births.		Slaughter (U. S. inspected).	
			Cattle.		Calves.					
	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>
January.....	4.9	4.9	8.7	8.7	6.7	6.7	3.5	3.5	8.7	8.7
February.....	7.2	12.1	6.9	15.6	5.9	12.6	10.1	13.6	7.4	16.1
March.....	14.6	26.7	7.1	22.7	8.0	20.6	20.8	34.4	7.7	23.8
April.....	19.0	45.7	6.9	29.6	10.0	30.6	27.0	61.4	6.7	30.5
May.....	16.0	61.7	7.3	36.9	10.5	41.1	28.5	89.9	6.8	37.3
June.....	8.8	70.5	7.5	44.4	9.7	50.8	6.8	96.7	7.4	44.7
July.....	4.6	75.1	7.9	52.3	9.1	59.9	.9	97.6	8.2	52.9
August.....	4.0	79.1	8.5	60.8	8.2	68.1	.4	98.0	8.9	61.8
September.....	6.2	85.3	9.3	70.1	8.3	76.4	.5	98.5	9.9	71.7
October.....	6.1	91.4	10.6	80.7	8.8	85.2	.5	99.0	9.9	81.6
November.....	4.9	96.3	10.1	90.8	7.9	93.1	.4	99.4	9.5	91.1
December.....	3.7	100.0	9.2	100.0	6.9	100.0	.6	100.0	8.9	100.0
	100.0	-----	100.0	-----	100.0	-----	100.0	-----	100.0	-----

Month.	Swine.							
	Births.		Slaughter.					
			U. S. inspected.		Farm.		Total.	
	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>	<i>Per cent.</i>	<i>Cumu- lative.</i>
January.....	3.6	3.6	12.3	12.3	20.3	20.3	14.9	14.9
February.....	6.2	9.8	9.6	21.9	10.3	30.6	9.8	24.7
March.....	16.0	25.8	8.3	30.2	5.0	35.6	7.2	31.9
April.....	21.6	47.4	7.3	37.5	1.6	37.2	5.4	37.3
May.....	15.2	62.6	8.5	46.0	.7	37.9	5.9	43.2
June.....	7.2	69.8	8.6	54.6	.4	38.3	5.9	49.1
July.....	3.8	73.6	6.8	61.4	.3	38.6	4.7	53.8
August.....	4.4	78.0	5.5	66.9	.5	39.1	4.0	57.8
September.....	9.1	87.1	5.2	72.1	2.4	41.5	4.3	62.1
October.....	6.5	93.6	7.2	79.3	6.9	48.4	7.1	69.2
November.....	3.8	97.4	9.1	88.4	19.5	67.9	12.5	81.7
December.....	2.6	100.0	11.6	100.0	32.1	100.0	18.3	100.0
	100.0	-----	100.0	-----	100.0	-----	100.0	-----

CATTLE BIRTHS MORE UNIFORM THAN OTHERS.

As is well known, the great majority of all kinds of farm animals are born during the spring months. The chart shows that more cattle and swine are born in April than in any other month. A high percentage of sheep is also born in April, but still more in May.

The cattle-birth curve is more uniform than that of sheep or swine. There is, of course, a sharp rise during March, April, and

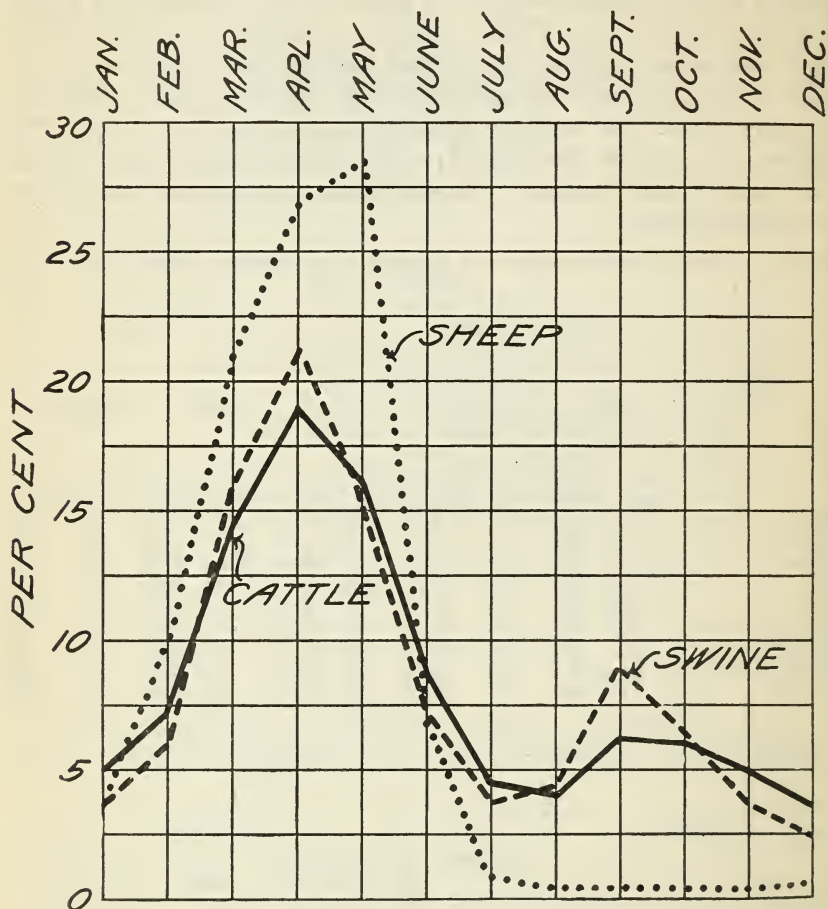


FIG. 3.—Monthly ratios of births.

May and a lesser one during September and October, but numerous calves are born in every month of the year.

Similar characteristics apply in the case of pigs, except that both the spring and fall peaks are higher, especially the one in September. The figures show 52.8 per cent of all pigs to be born in the three spring months, while 9.1 per cent, or one-eleventh of the total, are born in September.

Lambs are decidedly a spring product. The investigation showed that 76.3 per cent of all lambs were born in the three months March to May, inclusive. In the first six months 96.7 per cent of the lambs were dropped, leaving only 3.3 per cent during the last six months of the year. It may be mentioned, however, that the percentages for the latter part of the year are considerably higher for sections of the country other than the far West, where the majority of the sheep are. The great range flocks of the West, where comparatively little lambing occurs after July, make the average for the whole country very low.

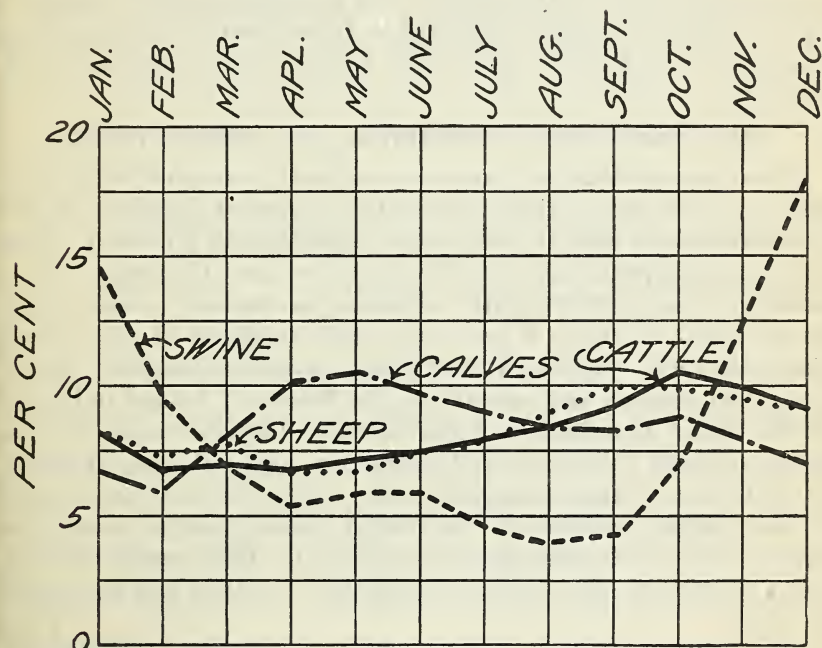


FIG. 4.—Monthly ratios of slaughter

SWINE SLAUGHTER DROPS HEAVILY IN SUMMER.

Since quantities of meat are consumed every day in the year, there is necessarily much more uniformity in monthly slaughter of animals than in births. Nevertheless there are seasonal differences, notably in the case of swine.

The high period for beef slaughter is in the fall, October and November each having more than 10 per cent of the year's total. With calves the case is reversed, the greatest marketings occurring in April and May.

Considerably more sheep and lambs are marketed in the latter half of the year than in the first six months, September and October being the heaviest months. The slaughter throughout the year, however, runs quite uniformly with that of cattle. The slaughter

curves of calves and swine, on the other hand, vary widely. The curve for swine includes the farm kill, which accounts for the great variation between the winter and summer months. The commercial slaughter is also considerably heavier in winter than in summer, as may be seen in Table 4.

The farm kill forms a large proportion of the total hog slaughter of the country—25.2 per cent according to the latest estimate. Farmers do the bulk of their hog killing in the early winter. Almost three-fourths of the total occurs during three months—November, December, and January—and nearly one-third of the total occurs in the single month of December. It is an interesting fact that during that month more hogs are killed on farms than in all the packing houses and other places where the Federal meat inspection is in operation.

MEAT PRODUCTION, CONSUMPTION, AND FOREIGN TRADE.

Three kinds of slaughter reports are primarily concerned in the compilation of the meat tables: (1) Total commercial slaughter of the United States for 1909, by the census (Manufactures Division). This was a special report and has not been repeated since that time. Combined with the farm slaughter, which is ascertained in the regular census every 10 years, it gave the entire slaughter of the United States for 1909. (2) The United States inspected slaughter, which is reported monthly and annually by the Bureau of Animal Industry, United States Department of Agriculture. Certain statistical data connected with this class of slaughter are also published monthly by the Bureau of Agricultural Economics. (3) The wholesale slaughter and packing industry of the United States, reported every five years by the census (Manufactures Division). Each report covers a year's operations; the first one issued was for 1899 and the latest for 1919.

Thus it is seen that the only kind of slaughter determined annually is the "U. S. inspected." It is reported very fully and accurately, but only in respect to the numbers of the animals slaughtered, not their weights. In order to estimate the noninspected slaughter, ratios are used which were established at the census of 1909, when all the different kinds of slaughter were definitely known. It has been necessary to change these ratios, especially since the publication of certain data of the last census, covering the year 1919, which recently became available. The annual ratios of cattle and calf slaughter are estimated by Sewall Wright, of the Bureau of Animal Industry.

The estimates in the tables begin with the calendar year 1907, as that was the first full year the Federal inspection was in operation on its present scale. The animals are converted into meat by use of average carcass weights and average dressing percentages derived

from Bureau of Markets and Crop Estimates, census reports, and other sources.

The data throughout are computed from a dressed-weight basis. The edible offal (liver, pluck, etc.) is not included in the dressed weights and so is disregarded. In the aggregate it represents a large quantity of edible material, but it is more than offset by the bones and waste trimmings of the dressed carcasses. The figures in the tables, therefore, represent approximately actual meat. Lard is estimated separately from the dressed weights of swine.

ANNUAL SLAUGHTER OF FOOD ANIMALS, 1907-1921.

Table 5 gives the numbers of the various animals annually slaughtered under the United States inspection; also the estimated total numbers slaughtered, including those on farms. Figure 5 shows the total slaughtered in graphic form and the trend in relation to numbers slaughtered of each of the three species. The meat equivalents will be shown later.

TABLE 5.—*Numbers of animals slaughtered annually under Federal inspection and estimated total number slaughtered (including farm) in United States, 1907-1921.*

Calendar year.	Cattle.	Calves.	Sheep and lambs.	Goats.	Swine.
1907:					
U. S. inspected	7,633,365	2,024,387	10,252,070	56,750	32,885,377
Total	13,469,900	6,026,800	13,300,600	161,000	55,737,900
1908:					
U. S. inspected	7,279,260	1,958,273	10,304,666	42,981	38,643,101
Total	12,845,000	5,829,900	13,368,800	121,900	65,496,800
1909:					
U. S. inspected	7,713,807	2,189,017	11,350,349	100,659	31,394,896
Total (census)	13,611,422	6,515,976	14,724,699	285,553	53,219,568
1910:					
U. S. inspected	7,807,600	2,238,587	11,408,020	100,379	26,003,463
Total	13,540,600	6,552,600	14,800,200	284,800	44,073,500
1911:					
U. S. inspected	7,619,096	2,183,533	14,020,446	38,891	34,232,955
Total	12,958,100	6,264,500	18,189,500	110,300	58,022,000
1912:					
U. S. inspected	7,252,378	2,277,946	14,979,265	72,894	33,052,727
Total	11,979,000	6,348,000	19,433,400	206,800	56,022,000
1913:					
U. S. inspected	6,978,361	1,902,414	14,405,759	75,655	34,198,585
Total	11,477,600	5,284,500	18,689,400	214,600	57,973,500
1914:					
U. S. inspected	6,756,737	1,696,962	14,229,343	175,906	32,531,840
Total	11,004,500	4,661,400	18,460,500	499,000	55,148,100
1915:					
U. S. inspected	7,153,395	1,818,702	12,211,765	153,346	38,381,228
Total	10,822,100	4,639,500	15,843,000	453,000	65,064,000
1916:					
U. S. inspected	8,310,458	2,367,303	11,941,366	198,909	43,088,708
Total	12,026,700	5,773,900	15,492,200	564,300	73,035,600
1917:					
U. S. inspected	10,350,052	3,142,721	9,344,994	165,660	33,909,704
Total	13,723,900	7,030,700	12,123,800	470,000	57,488,800
1918:					
U. S. inspected	11,828,549	3,456,393	10,319,877	137,725	41,214,250
Total	15,750,449	7,767,193	13,230,577	390,125	65,732,450
1919:					
U. S. inspected	10,089,984	3,969,019	12,691,117	87,380	41,811,830
Total	13,635,084	9,041,019	16,264,817	247,480	66,680,330
1920:					
U. S. inspected	8,608,691	4,058,370	10,982,180	42,477	38,018,684
Total	12,847,691	9,223,370	14,079,680	120,477	60,635,884
1921:					
U. S. inspected	7,608,280	3,807,568	13,004,905	12,133	38,982,356
Total	12,271,280	8,654,568	16,673,005	34,433	62,172,856

NOTE.—United States inspection of horses at slaughter was commenced in September, 1919, the number so inspected to date being: 1919, 433; 1920, 894; 1921, 2,562. A large proportion of this horse flesh is exported.

A glance at Figure 5 shows that the cattle and sheep curves run together somewhat regularly throughout. The high tide in sheep marketing, from 1912 to 1915, was coincident with a depression in cattle slaughtering, so that during those years the sheep curve is slightly higher. The war conditions then promoted cattle feeding, but had a reverse effect on sheep. Lately both curves show a tendency to come together.

Swine marketings are of course much more numerous than those of cattle or sheep; more so, in fact, than both combined. Hog marketing, however, is subject to sharp vicissitudes, due to the prevailing economic and feeding conditions. It will be noted there are two pronounced depressions in the swine curve. The first, in 1909 and 1910, was caused by a failure of the corn crop, and the second, in 1917, is attributed to overmarketing in the previous year. The

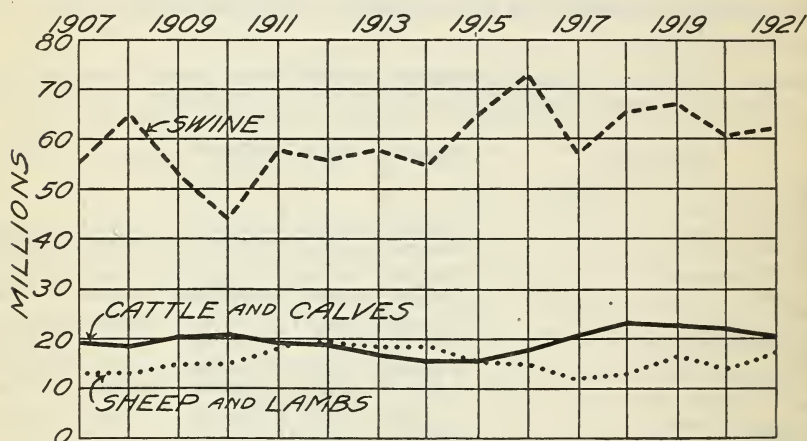


FIG. 5.—Total animals slaughtered, 1907-1921.

slaughter in 1916 was in fact the largest in history. In that year war conditions and prices induced feeders to draw on the future, thus depleting the stock. The chart shows a remarkable recovery, however, in 1918 and 1919. This was not kept up in 1920 and 1921 largely because of the disastrous break in values during those years.

ANNUAL PRODUCTION OF MEATS AND LARD, 1907-1921.

The quantities of dressed meat and lard annually resulting from the slaughter of animals are given in Table 6 and Figure 6.

TABLE 6.—Estimated total production of dressed meats and lard in United States annually, 1907–1921.

[In millions of pounds.]

Calendar year.	Beef.	Veal.	Mutton and lamb.	Pork (exclusive of lard).	Total dressed meat. ¹	Lard.
1907.....	7,319	626	559	7,491	16,002	1,683
1908.....	6,676	605	555	8,226	16,067	1,854
1909.....	7,071	684	604	6,690	15,060	1,506
1910.....	6,733	687	600	5,881	13,913	1,344
1911.....	6,497	657	738	7,511	15,407	1,717
1912.....	5,920	668	788	7,189	14,573	1,643
1913.....	5,913	488	738	7,492	14,640	1,713
1914.....	5,639	433	720	7,228	14,039	1,652
1915.....	5,816	428	626	8,050	14,937	1,840
1916.....	6,118	536	612	8,634	15,922	1,973
1917.....	6,686	662	473	6,901	14,740	1,577
1918.....	7,320	791	489	8,854	17,469	2,015
1919.....	6,283	860	602	8,933	16,687	2,089
1920.....	6,463	936	538	8,193	16,135	2,022
1921.....	6,194	888	601	8,475	16,159	2,095

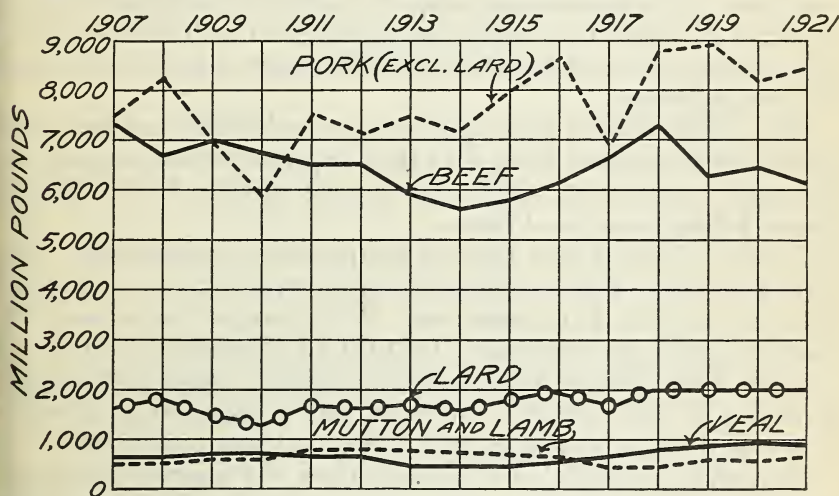
¹ Includes small quantity of goat meat.

FIG. 6.—Total meat and lard production, 1907–1921.

Table 6 and the corresponding chart show a gradual decline in beef production from 1909 until the call of the late war spurred cattle raisers to a supreme effort. A steady rise of the beef curve from 1914 to the high peak of 1918 was the consequence. Since that year, however, there has been a decline of more than a billion pounds in the annual production.

The curve showing pork production has two abnormally low points, the causes for which have been explained in the discussion of Table 5. Otherwise the war demands on swine raisers were met in even greater degree than was the case with cattlemen. The high points of pork production in 1916, 1918, and 1919 were in each case a new high record.

A glance at the lines of mutton and veal shows the relative smallness of the quantity produced of each of these classes in comparison with pork and beef. From 1911 to 1916 mutton production was larger than that of veal, but war conditions favored the marketing of calves, and from 1917 to 1920 veal production increased markedly although during most of that period beef production was diminishing.

The curve of lard production shows a steady supply at a high level during the last four years.

FOREIGN TRADE IN MEATS, LARD, AND ANIMALS, 1907-1921.

Tables 7, 8, and 9 and Figure 7 illustrate the part played by meats, lard, and meat animals in our foreign trade. The figures in the tables are taken from the December reports of the Department of Commerce, which give the calendar-year totals. The exports are those of domestic origin, and the imports are the net imports, after deducting the reexports. In some cases adjustments have been necessary in order to bring all meat items under the heads given in Tables 7 and 8. The Bureau of Animal Industry records of import meats are also used for this purpose.

The exports of beef, pork (mostly bacon and hams), and lard have been large at all times, and during the war period were abnormally so, although they do not include the overseas supplies for the United States military and naval forces.

Imports of meats as a rule are comparatively unimportant, consisting mostly of European specialties, for which there is a demand among certain classes of consumers. Beef, however, has occasionally been imported in quantities. In 1920 an attempt was made to market New Zealand lamb in this country. About 100,000,000 pounds were imported with the result that a large portion failed to find a market and was reexported during that year and in 1921.

Regarding the trade in live animals, there was a period during the nineties and early in the present century when exports of beef cattle on the hoof were very important. In some years more than 500,000 high-class beeves were thus shipped, mostly to British ports for immediate slaughter. Table 9 shows how this trade became practically nonexistent by 1914. It was, in fact, displaced largely because of the greater economy and convenience of shipping the beef in a refrigerated state.

The imports of cattle, which are considerable, are mostly stocker and feeder animals brought over the Canadian and Mexican borders.

TABLE 7.—*Exports (domestic) of meats and lard from United States annually, 1907–1921.*

[In millions of pounds.]

Calendar year.	Beef.	Mutton and lamb.	Pork (exclusive of lard).	Total meat.	Lard.
1907.....	352	1	1,014	1,367	589
1908.....	228	1	619	848	582
1909.....	163	2	472	637	458
1910.....	110	2	313	425	379
1911.....	92	3	456	551	605
1912.....	56	5	440	501	553
1913.....	46	5	456	507	575
1914.....	95	4	377	476	460
1915.....	399	4	906	1,309	487
1916.....	287	5	1,011	1,303	454
1917.....	376	3	943	1,322	383
1918.....	728	2	1,724	2,454	555
1919.....	314	3	1,897	2,214	784
1920.....	164	4	925	1,093	636
1921.....	52	20	748	820	893

TABLE 8.—*Imports ¹ (less reexports) of meat into United States annually, 1913–1921.*

[In millions of pounds.]

Calendar year.	Beef.	Veal.	Mutton and lamb.	Pork (exclusive of lard).	Total meat.
1913 (6 months).....	35	.....	.....	1	36
1914.....	253	5	18	31	307
1915.....	125	1	14	7	147
1916.....	23	1	14	2	40
1917.....	25	1	6	4	36
1918.....	125	1	1	4	131
1919.....	53	5	7	7	72
1920.....	43	8	2 62	3	116
1921.....	23	4	2 18	1	46

¹ Imports of meat were not separately enumerated until July 1, 1913. The figures in this table are from Bureau of Animal Industry records, which permit a more accurate classification than is given in the monthly summary of the Department of Commerce.

² Reexports of New Zealand lamb in 1921 have been adjusted by applying 40,000,000 pounds on the imports of the previous year (1920).

TABLE 9.—*Exports and imports of food animals (number), 1907–1921.*

Calendar year.	Exports (domestic).			Imports (less reexports).		
	Cattle.	Sheep.	Swine.	Cattle.	Sheep.	Swine. ¹
1907.....	401,583	121,197	23,783	64,096	200,431	.....
1908.....	277,036	100,644	29,005	112,017	125,502	.....
1909.....	184,957	54,613	11,886	153,808	120,862	.....
1910.....	109,629	32,638	4,019	211,192	55,846	.....
1911.....	164,087	177,069	13,246	251,173	22,856	.....
1912.....	46,463	191,963	17,478	325,651	89,058	.....
1913.....	26,236	170,411	12,118	736,588	115,688	.....
1914.....	8,694	78,227	12,399	727,886	199,995	.....
1915.....	16,256	40,501	7,261	552,302	276,521	.....
1916.....	12,171	55,059	25,301	295,067	125,720	3,578
1917.....	20,009	30,359	15,588	347,510	202,861	2,402
1918.....	17,280	7,962	10,308	352,568	150,053	16,236
1919.....	69,859	34,531	24,745	641,853	221,538	7,467
1920.....	85,302	48,878	55,250	377,397	172,841	20,657
1921.....	195,533	117,396	123,067	198,704	84,734	1,096
						2,838

¹ Not separately enumerated until 1915.

Figure 7, showing the exports of meats and lard, is chiefly remarkable for the extraordinary bulge due to the war trade, which consists of a 5-year period extending from 1915 to 1919. It may be noted that the beef curve begins to fall one year earlier than pork, the beef highest peak being in 1918 and that of pork in 1919. It is noticeable also that lard did not follow the upward trend of pork in the early years of the war. This was owing to the loss of trade with Germany and some other European countries which are normally large consumers. The revival of this trade caused lard exports to break all records in 1919 and 1921.

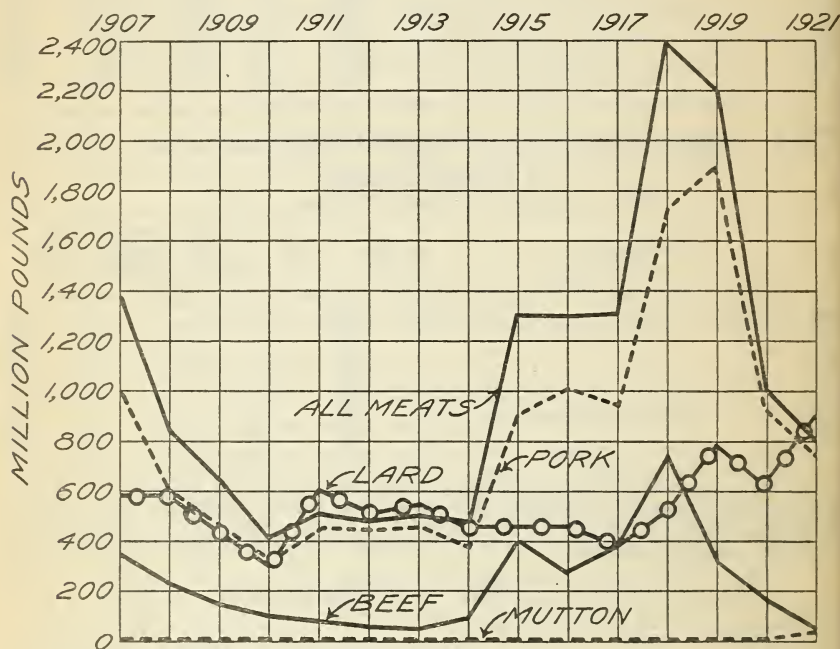


FIG. 7.—Exports of meat and lard, 1907-1921.

An interesting comparison may be noted in respect to the curves of lard and all meats combined. During the three pre-war years 1911 to 1913 the exports of lard slightly exceeded those of all meats. The influence of the war then carried the meats to unprecedented heights while lard exports actually decreased until 1917. Following that year the meats curve dropped sharply, while that of lard rose steadily until, in 1921, it was again slightly higher than the meats.

PER CAPITA CONSUMPTION OF MEATS AND LARD, 1907-1921.

The consumption of dressed meat per head of the population is shown in Table 10 and Figure 8. The per capita figures are derived by dividing the annual consumption totals of each kind of meat by

the population of continental United States for July 1 of each year as published by the census.

TABLE 10.—Per capita consumption of dressed meat and lard (in pounds) 1907-1921.

Kind.	1907	1908	1909	1910	1911	1912	1913	1914
Beef.....	79.7	72.4	76.2	71.8	68.4	61.7	60.8	58.9
Veal.....	7.1	6.8	7.5	7.4	7.0	7.0	5.0	4.4
Mutton and lamb.....	6.4	6.2	6.6	6.5	7.8	8.2	7.5	7.5
Pork (exclusive of lard).....	74.1	85.4	68.6	60.3	75.1	70.6	72.5	69.9
Goat.....	.1	.1	.1	.2	.1	.2	.1	.2
Total.....	167.4	170.9	159.0	146.2	158.4	147.7	145.9	140.9
Lard.....	12.5	14.3	11.6	10.5	11.8	11.4	11.7	12.1

Kind.	1915	1916	1917	1918	1919	1920	1921
Beef.....	55.7	58.1	62.0	64.8	57.3	61.1	57.7
Veal.....	4.3	5.3	6.5	7.6	8.2	8.9	8.3
Mutton and lamb.....	6.4	6.2	4.7	4.7	5.8	5.0	6.1
Pork (exclusive of lard).....	72.0	75.7	58.4	68.9	67.1	68.9	72.8
Goat.....	.2	.2	.2	.1	.1	.1	.....
Total.....	138.6	145.5	131.8	146.1	138.5	144.0	144.9
Lard.....	13.6	15.1	11.7	14.1	12.4	13.1	11.3

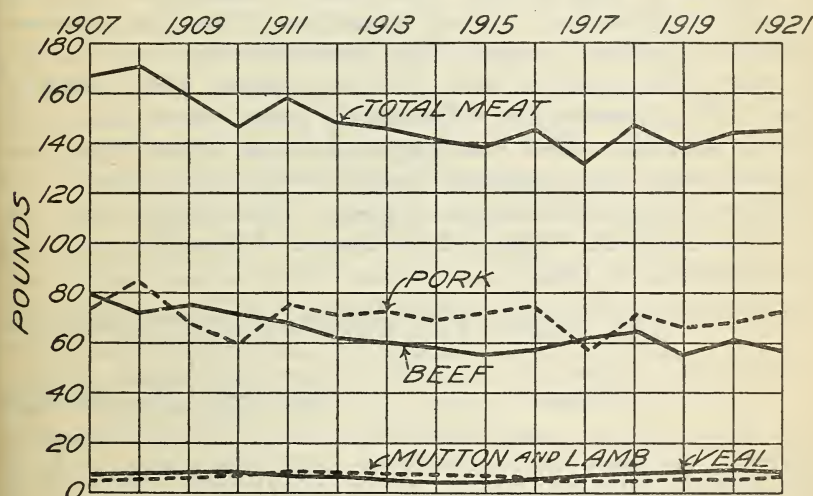


FIG. 8.—Per capita consumption of meat, 1907-1921.

The greatest quantity of dressed meat estimated to have been produced in a year was in 1918, when the total reached 17,469,000,000 pounds. But in that year the exports were also greatest, and the quantity consumed in the United States—15,146,000,000 pounds—has since been exceeded both in 1920 and 1921, while as far back as 1908 the consumption total was practically the same as that of 1918.

The total quantity of meat consumed year by year shows only a limited variation. But the steadily increasing population has brought about a considerable decline in the per capita consumption. For the first five years in the table, from 1907 to 1911, the per capita

consumption averaged 160.4 pounds, while for the last five years, from 1917 to 1921, the average is 141.1 pounds. Thus in 10 years there is a decrease of 19.3 pounds, or 12 per cent.

The year of highest consumption per head in the table is 1908, with a total of 170.9 pounds, and the lowest was 1917, with 131.8 pounds. It will be recalled, however, that 1917 was a year of restricted marketing, especially of sheep and swine, as well as of "meatless days" to conserve a short supply for war needs. In connection with these highest and lowest figures, it may be of interest to note by way of contrast that 50 per cent of all the meat consumed in 1908 was pork, and the average price paid for hogs that year in Chicago was \$5.70 per 100 pounds, while in 1917 the proportion of pork to total meat consumed had fallen to 44 per cent, and the average price paid for hogs at Chicago had risen to \$15.10 per 100 pounds.

PER CAPITA CONSUMPTION IN VARIOUS COUNTRIES.

For comparison with the United States totals Table 11 is given, showing meat consumption in such other countries as there are estimates available for. No very recent data of this kind have been published, however, because of the unsettled conditions following the war. The figures in each case cover pre-war periods and are given as an approximation of the normal yearly consumption in the various countries. Meat-consumption data for Great Britain and Germany have been published frequently and the figures in the table are averages for a series of years. The estimates were prepared by George K. Holmes, of the Bureau of Crop Estimates and were published in 1916.

TABLE 11.—*Per capita consumption of meat (in pounds), pre-war, in specified countries.*

Country.	Total meat.	Beef and veal.	Mutton and lamb.	Pork.	Other meat.
Argentina.....	281	240	28	13	.....
Australia (1902).....	262.6				.....
New Zealand (1902).....	212.5				.....
United States (10-year average, 1912-1921).....	142.4	66.3	6.2	69.8	0.1
Canada (1910).....	137	61	9	67	.....
Cuba (1906).....	124				.....
United Kingdom (average, 1895-1908).....	120	57.7	26.7	35.6	.....
Germany (average, 1904-1913).....	115	41.5	2.2	69.4	¹ 1.9
France (1904).....	80	43	9	27	1 1
Denmark (1902).....	76				.....
Switzerland (1899).....	75				.....
Belgium (1902).....	70				.....
Netherlands (1902).....	70				.....
Greece (1899).....	68				.....
Austria-Hungary (1890).....	64				.....
Norway (1902).....	62				.....
Sweden (1902).....	62				.....
Poland (1890).....	62				.....
Russia (1899).....	50				.....
Spain (1890).....	49				.....
Italy (1901).....	46.5				.....

¹ Horses are slaughtered for food under official supervision in France and Germany, and in the latter country some dogs also.

It will be noted there are three countries only which have a consumption per head of the population greater than that of the United States, and in every case these are countries of sparse population and large surpluses of cattle and sheep. Argentina, Australia, and New Zealand are now the great sources of the world's surplus of beef and mutton. Consequently in such countries these products are abundant and cheap, to say nothing of the probable waste in their use, which would add further to the quantity reported for home consumption.

The estimate for Argentina appeared in an article in the official monthly bulletin of the Argentine Department of Agriculture for March, 1914. As it is the highest meat-consuming country in the list, a brief outline of the method of making the estimate may be of interest. The total cattle and sheep slaughtered were first calculated by taking the number of hides and skins, reported during the year, to be used in the country and exported. After certain deductions and allowances for meat exports, dead animals, etc., it is calculated that 4,292,841 head of cattle (including 25 per cent of calves) were consumed in Argentina. An average weight of 225 kilograms (496 pounds) is allowed for these animals, which, divided by an assumed population of 8,000,000, gives the per capita of beef and veal as 121 kilograms (266½ pounds). A similar calculation with sheep makes the per capita of mutton 12 kilograms (26½ pounds). The author then states the per capita consumption of beef, mutton, and pork at the capital (Buenos Aires), from known figures, to be as given in Table 11, and these totals are adopted as the estimate for the whole of Argentina, although it may be noted that the figure for beef is 26½ pounds less than the one first calculated. It may be stated, also, that published statistics show the per capita consumption in large cities to be in general considerably less than for a whole country.

In six of the countries in the table the data include the proportion consumed of each kind of meat. These figures indicate that (1) the people of Argentina consume the most beef; (2) the British meat dietary has the closest balance of beef, mutton, and pork and by far the largest proportion of mutton; and (3) the Germans are relatively the greatest pork consumers.

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